Appl. No. 10/707,362
Amdt. dated August 08, 2006
Reply to Office action of July 11, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1 (currently amended): A driving method of a liquid crystal display, the liquid crystal display comprising:

a liquid crystal panel, the liquid crystal panel comprising:

a plurality of scan lines;

a plurality of data lines; and

a plurality of pixels, each pixel is connected to a corresponding scan line and a corresponding data line, and each pixel has a switching device connected to the corresponding scan line and the corresponding data line;

the driving method comprising:

(a) continuously providing scan voltages to the scan lines;

(b) receiving an M-bit image data from an image data input terminal;

(c) extracting N most significant bits (MSB) of the M-bit image data to form an N-bit image data, N is smaller than M;

(d) delaying the N-bit image data by a frame period to form an N-bit delayed image data;

(e) comparing P MSB of a current M-bit image data with the N-bit delayed image data to determine a result value;

(f) if the result value equals a first result value, selecting [[a]] an M-bit first image value from a reference table in accordance with the P MSB and the N-bit delayed image data and forming a first data voltage according to the M-bit first image value, and providing the first data voltage to the corresponding data line; and

(g) if the result value equals a second result value, forming a second data voltage

in accordance with the current M-bit image data and providing the second data voltage to the corresponding data line.

2 (original): The driving method of claim 1 further comprising:

(h) producing a temperature compensation signal in accordance with temperature of the liquid crystal panel; and

(i) selecting the reference table used in step (f) from a plurality of tables in accordance with the temperature compensation signal.

3 (original): The driving method of claim 1 wherein the reference table is recorded with $(2^N \times 2^P)$ image data values.

4 (original): The driving method of claim 1 wherein P is greater than N.

5 (original): The driving method of claim 1 wherein P equals N.

6 (currently amended): A driving method of a liquid crystal display, the liquid crystal display comprising:

a liquid crystal panel, the liquid crystal panel comprising:

a plurality of scan lines;

a plurality of data lines; and

a plurality of pixels, each pixel is connected to a corresponding scan line and a corresponding data line, and each pixel has a switching device connected to the corresponding scan line and the corresponding data line;

the driving method ~~comprises~~ comprising:

(a) continuously providing scan voltages to the scan lines;

(b) receiving an M-bit image data from an image data input terminal;

(c) extracting N most significant bits (MSB) from the M-bit image data to form an N-bit image data, N is smaller than M;

(d) delaying the N-bit image data by a frame period to form an N-bit delayed image data;

(e) comparing P MSB of a current M-bit image data with the N-bit delayed image data to determine a result value;

(f) if the result value equals a first result value, selecting [[a]] an M-bit first image value from a reference table in accordance with the P MSB and the N-bit delayed image data and forming a first data voltage according to the M-bit first image value, and providing the first data voltage to the corresponding data line; and

(g) if the result value equals a second result value, selecting a second image value from a reference table in accordance with the P MSB and the N-bit delayed image data and forming a second data voltage in accordance with (M – Q)MSB of the second image value and Q least significant bits (LSB) of the current M-bit image data, and then providing the second data voltage to the corresponding data line.

7 (original): The driving method of claim 6 further comprising:

(h) producing a temperature compensation signal in accordance with temperature of the liquid crystal panel; and

(i) selecting the reference table used in step (f) from a plurality of tables in accordance with the temperature compensation signal.

8 (original): The driving method of claim 6 wherein the reference table is recorded with $(2^N \times 2^P)$ image data values.

9 (original): The driving method of claim 6 wherein P is greater than N.

10 (original): The driving method of claim 6 wherein P equals N.

11 (currently amended): A driving circuit for driving a liquid crystal display, the liquid crystal display comprising:

a liquid crystal panel, the liquid crystal panel comprising:

a plurality of scan lines;

a plurality of data lines; and

a plurality of pixels, each pixel is connected to a corresponding scan line and a corresponding data line, and each pixel has a switching device connected to the corresponding scan line and the corresponding data line;

the driving circuit comprising:

a scan line driving circuit for continuously providing scan voltages to the scan lines;

an image data input terminal for receiving an M-bit image data;

a bit processor for extracting N most significant bits (MSB) from the M-bit image data to form an N-bit image data, N is smaller than M;

an image memory for storing the N-bit image data and delaying the N-bit image data by a frame period;

a comparison circuit for comparing P MSB of a current M-bit image data with the N-bit delayed image data to determine a result value;

a lookup table (LUT) for outputting an M-bit image value in accordance with the P MSB and the N-bit delayed image data;

a multiplexer for outputting the M-bit image value or outputting the M-bit image data in accordance with the result value; and

a data line driving circuit for forming a data voltage in accordance with output of the multiplexer, and providing the data voltage to the corresponding

data line.

12 (currently amended): The driving circuit of claim 11 further comprising:

a temperature detector for detecting temperature of the liquid crystal panel, and producing a temperature compensation signal in accordance with temperature of the liquid crystal panel;

a memory for storing a plurality of tables; and

a selector for selecting a reference table from the plurality of tables stored in the memory in accordance with the temperature compensation signal, and transferring the selected reference table to the LUT to make the LUT output the M-bit image value in accordance with the selected reference table.

13 (currently amended): The driving circuit of ~~claim 11~~ claim 12 wherein the reference table is recorded with (2^N x 2^P) image data values.

14 (original): The driving circuit of claim 11 wherein P is greater than N.

15 (original): The driving circuit of claim 11 wherein P equals N.

16 (original): A driving circuit for driving a liquid crystal display, the liquid crystal display comprising:

a liquid crystal panel, the liquid crystal panel comprising:

a plurality of scan lines;

a plurality of data lines; and

a plurality of pixels, each pixel is connected to a corresponding scan line and a corresponding data line, and each pixel has a switching device connected to the corresponding scan line and the corresponding data line;

the driving circuit comprises:

a scan line driving circuit for continuously providing scan voltages to the scan lines;

a image data input terminal for receiving an M-bit image data;

a bit processor for extracting N most significant bits (MSB) from the M-bit image data to form an N-bit image data, N is smaller than M;

an image memory for storing the N-bit image data and delaying the N-bit image data by a frame period;

a comparison circuit for comparing P MSB of a current M-bit image data with the N-bit delayed image data to determine a result value;

a lookup table (LUT) for outputting an image value in accordance with the P MSB and the N-bit delayed image data;

a multiplexer for outputting Q least significant bits (LSB) of the image value or outputting Q LSB of the M-bit image data in accordance with the result value; and

a data line driving circuit for producing a data voltage in accordance with output of the multiplexer and (M-Q) MSB of the image value, and providing the data voltage to the corresponding data line.

17 (original): The driving circuit of claim 16 further comprising:

a temperature detector for detecting temperature of the liquid crystal panel, and producing a temperature compensation signal in accordance with temperature of the liquid crystal panel;

a memory for storing a plurality of tables; and

a selector for selecting a reference table from the plurality of tables stored in the memory in accordance with the temperature compensation signal, and transferring the selected reference table to the LUT to make the LUT output the image value in accordance with the selected reference table.

18 (currently amended): The driving circuit of ~~claim 16~~ claim 17 wherein the reference table is recorded with $(2^N \times 2^P)$ image data values.

19 (original): The driving circuit of claim 16 wherein P is greater than N.

20 (original): The driving circuit of claim 16 wherein P equals N.